

Remarks

Claims 1-9 are pending in the application.

The drawings are objected to because in Figure 2, the word "RESIDUAL" is incorrectly spelled as "RESIDIUAL."

Claims 1-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Nishimoto et al. (U.S. Published Application 2002/0089724 A1, hereinafter "Nishimoto").

By this amendment, new claims 10-11 have been added.

Each of the various rejections and objections are overcome by amendments that are made to the specification, drawing, and/or claims, as well as, or in the alternative, by various arguments that are presented.

Any amendments to any claim for reasons other than as expressly recited herein as being for the purpose of distinguishing such claim from known prior art are not being made with an intent to change in any way the literal scope of such claims or the range of equivalents for such claims. They are being made simply to present language that is better in conformance with the form requirements of Title 35 of the United States Code or is simply clearer and easier to understand than the originally presented language. Any amendments to any claim expressly made in order to distinguish such claim from known prior art are being made only with an intent to change the literal scope of such claim in the most minimal way, i.e., to just avoid the prior art in a way that leaves the claim novel and not obvious in view of the cited prior art, and no equivalent of any subject matter remaining in the claim is intended to be surrendered.

Also, since a dependent claim inherently includes the recitations of the claim or chain of claims from which it depends, it is submitted that the scope and content of any dependent claims that have been herein rewritten in independent form is exactly the same as the scope and content of those claims prior to having been rewritten in independent form. That is, although by convention such rewritten claims are labeled herein as having been "amended," it is submitted that only the format, and not the content, of these claims has been changed. This is true whether a dependent claim has been rewritten to expressly include the limitations of those claims on which it formerly depended or whether an

independent claim has been rewriting to include the limitations of claims that previously depended from it. Thus, by such rewriting no equivalent of any subject matter of the original dependent claim is intended to be surrendered. If the Examiner is of a different view, he is respectfully requested to so indicate.

Amendment to the Drawings

Replacement Sheet for Figure 2 is submitted herewith to correct a typographical mistake for the word "RESIDUAL". As such, the objection to Figure 2 should be withdrawn.

Replacement Sheet for Figure 1 is also submitted to correct a typographical mistake. Specifically, "BIR-ERROR" in block 142 has been amended to read "BIT ERROR".

Rejection Under 35 U.S.C. 102

Claims 1-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Nishimoto et al., U.S. Published Application 2002/0089724 A1 (hereinafter "Nishimoto").

The Office Action cited Figs. 1 and 5, paragraphs 52, 54 and 65-66 in Nishimoto as disclosing various features in Applicants' claim 1. However, Applicants respectfully disagree that Applicants' invention is anticipated by Nishimoto.

Specifically, Applicants' invention is directed towards a method and apparatus for measuring the residual chromatic dispersion in an optical transmission system. As recited in claim 1, the method includes, among others, the steps of "introducing a predetermined amount of chromatic dispersion at the receive end of the system; measuring a bit error rate for the system corresponding to the predetermined amount of chromatic dispersion". By iterating these steps, a minimum bit error rate (BER) can be obtained, and the residual chromatic dispersion is given by the complement of the predetermined amount of chromatic dispersion at which the minimum BER is achieved.

Nishimoto, on the other hand, is directed towards a method and apparatus for dispersion compensation. Unlike Applicants' invention, Nishimoto's method only compensates for signal dispersions, but does not provide a measured value for the

residual chromatic dispersion. In fact, there is no teaching in Nishimoto as to how one can arrive at a value for the residual chromatic dispersion, because Nishimoto's compensation method does not require the dispersion to be measured.

Instead, Nishimoto's apparatus in Fig. 1 is configured to provide feedback to a control circuit 13, so that a variable dispersion compensator 10 can vary the dispersion to compensate for signal degradation caused by wavelength dispersion and polarization mode dispersion (PMD), e.g., Nishimoto, paragraph 19.

In connection with Figure 5, which shows a plot of the BER as a function of the dispersion from the compensator 10, Nishimoto teaches that when the bit error rate is at a minimum, the wavelength dispersion value is set as the optimum value (paragraph 66, first sentence). However, this setting "provides a totally optimized optical signal waveform taking account of both of wavelength dispersion and polarization mode dispersion" (last sentence of Nishimoto's paragraph 66).

In other words, all that is required in Nishimoto's compensation method is to simply maintain the signal waveform at an optimum setting, based on a reduction of BER. Contrary to Applicants' invention, there is no teaching or suggestion in Nishimoto regarding any measurement of the residual chromatic dispersion itself. This is understandable because such a measurement is simply not required in achieving dispersion compensation, as taught by Nishimoto.

Furthermore, Applicants submit that the condition of the BER minimum in Nishimoto is also different from Applicants' invention. Since Nishimoto seeks to compensate for both wavelength dispersion and polarization mode dispersion (PMD), the dispersion value at the BER minimum point in Fig. 5 would correspond to the optimum value necessary to compensate for both effects. As such, the BER minimum in Nishimoto's Fig. 5 would not have provided a measurement of the residual chromatic dispersion, as taught in Applicants' invention.

Thus, there is no teaching by Nishimoto of at least the feature of: "wherein the residual chromatic dispersion in the optical transmission system is represented by a complement of the predetermined amount of chromatic dispersion at which the minimum bit error rate is achieved", as recited in Applicants' claim 1.

As such, Nishimoto fails to disclose each and every element of the claimed invention, as arranged in claim 1. Therefore claim 1 is allowable over Nishimoto under 35 U.S.C. 102(b).

Independent claim 7 recites relevant limitations similar to those recited in claim 1. As set forth above, Nishimoto only teaches dispersion compensation, but not measurement of the residual chromatic dispersion. As such, Applicants' claim 7 also is allowable over Nishimoto under 35 U.S.C. 102(b).

Since all dependent claims that depend from the current independent claims include all the limitations of the respective independent claim from which they ultimately depend, each such dependent claim is also allowable over Nishimoto under 35 U.S.C. 102.

Therefore, the rejections should be withdrawn.

New Claims

Independent claims 10-11 have been added, which are directed respectively to an apparatus and method for measuring the residual chromatic dispersion at an intermediate location in an optical transmission system. Subject matter for claims 10-11 is fully supported by the original specification, for example, in at least Fig. 1 and page 6, lines 3-12. As such, no new matter is added as a result of these new claims.

For the same reasons set forth above, Applicants submit that claims 10-11 are also not anticipated by Nishimoto, and thus, patentable under 35 U.S.C. 102(b).

Secondary References

The secondary references made of record are noted. However, it is believed that the secondary references are no more pertinent to Applicant's disclosure than the primary references cited in the Office Action. Therefore, Applicant believes that a detailed discussion of the secondary references is not necessary for a full and complete response to this Office Action.

Conclusion

It is respectfully submitted that the Office Action's rejections have been overcome and that this application is now in condition for allowance. Reconsideration and allowance are, therefore, respectfully solicited.

If, however, the Examiner still believes that there are unresolved issues, the Examiner is invited to call Eamon Wall at (732) 530-9404 so that arrangements may be made to discuss and resolve any such issues.

Respectfully submitted,

Dated: 3/5/07

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IN THE DRAWINGS

Please replace Figures 1 and 2 with the replacement sheets attached at the end of this amendment.